

## ABSTRACT

This invention relates to a gas refining system wherein sulfur compounds contained in a high-temperature and high-pressure reducing gas obtained by the pressure gasification of coal or heavy oil or the like are adsorbed and removed in the form of a sulfide by an adsorbent, the adsorbent having the sulfide formed thereon is regenerated by roasting it with an oxygen-containing gas, and the regeneration gas containing sulfur dioxide formed by the roasting reaction is introduced into a reactor (50) where, by use of gas blowing means, the regeneration gas and an oxygen-containing gas are blown into a calcium compound-containing slurry fed to the reactor (50), and thereby brought into gas-liquid contact with the slurry to effect the absorption of sulfur dioxide and the precipitation of gypsum within the reactor (50), characterized in that the gas refining system is provided with temperature control means for selectively controlling the temperature of the slurry within the reactor (50) so as to fall within at least a first temperature range which causes  $\alpha$ -gypsum hemihydrate to precipitate or a second temperature range which causes gypsum dihydrate to precipitate. This invention is also characterized by the reactor (50) having a pressure vessel into which the regeneration gas can be blown under at least a pressure higher than atmospheric pressure, and by the gas

blowing means comprising a stirring rod (63) disposed in the lower part of the reactor (50) so as to be horizontally rotatable, and at least a gas supply pipe (64) disposed integrally with the stirring rod (63) for injecting the regeneration gas and the oxygen-containing gas in the vicinity of the stirring rod (63).